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graph? "So also the names in some cases might have been changed with advantage, but it was decided to follow the nomenclature of the 6th edition of Gray's Manual of the Botany of the Northern United States." It used to be the boast of Science that her votaries had the courage of their convictions; let us hope that this may continue.

As a list, however, the catalogue speaks well for the activity of the botanists of Maine. We note in the supplement the unlooked for occurrences of several far-western plants, viz., *Oxytropis lamberti sericea*, *Glycyrrhiza lepidota*, *Artemisia biennis*, *Cenchrus tribuloides*.

In the "Flora of Pasadena,"[3]—In a pamphlet of 45 pages Professor McClatchie has catalogued 1056 plants which he has found upon an area about ten miles north and south and six miles east and west, lying about the city of Pasadena, California. The southern edge of this tract is 500 feet above sea level while the northern edge rises to 5000 or 6000 feet upon the San Gabriel Mountains; at its western edge is a deep cañon traversed by a swift stream, and numerous small streams flow from the interior of the tracts.

Upon this small, but varied region have been found of Protophyta 40 species; Phycophyta, 50; Carpophyta, 350; Bryophyta, 53; Pteridophyta, 21; Spermaphyta, 542. The catalogue is therefore a list of the *plants* of the region, not of "the flowering plants and vascular cryptogams," as is so commonly the case in similar undertakings. Several things about the catalogue are especially commendable; thus, the place of publication of the new species (sixty-two) is given in all cases, a most helpful feature. This sentence, also, is significant, and hopeful; "being opposed to the naming of new species after collectors. I have attempted to prevent any being given my name, and have succeeded in all cases except one." Another commendable feature is that the author has "attempted to follow the Rochester rules for nomenclature." If we compare the two catalogues, we find that both show excellent work as their basis, but the western author is shown to have a broader conception of systematic botany, and to be less trammeled by the traditions of conservatism than the eastern one.—CHARLES E. BESSEY.

Frank's Diseases of Plants.[4]—The first volume the new edition of this useful work has recently appeared from the hand of Dr. Frank, of the Royal Agricultural High School of Berlin. The present volume deals solely with the those "diseases" which are due to inorganic agencies, those due to the attacks of parasitic animals and plants being deferred to the second volume. Thus we have nearly one-half of the book devoted to wounds, somewhat less than a third to atmospheric influences, about a sixth to the influence of the soil, while in remaining pages various other agents are discussed. A few woodcuts help to illustrate the text. An English work of this kind would be useful.—CHARLES E. BESSEY.

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[3] Flora of Pasadena and Vicinity, by Alfred J. McClatchie. Reprinted from Ried's History of Pasadena. Los Angeles, California, 1895.

Die Krankheiten der Pflanzen, Dr. A. B. Frank. Erster Band, Zwiete Auflage, Breslau, Verlag von Edward Trewendt, 1895, pp. 344.

Wilson's Atlas of Karyokinesis.[4]—It is the object to this altas to place before students and teachers of biology a practically continuous series of figures photographed directly from nature, to illustrate the the principal phenomena in the fertilization and early development of the animal egg. The new science of cytology has in the course of the past two decades brought forward discoveries relating to the fertilization of the egg and the closely-related subject of cell-division (karyokinesis) that have called forth on the part of Weismann and others some of the most important and suggestive discussions of the post-Darwinian biology. These discoveries must in some measure be dealt with by every modern text-book of morphology or physiology, yet they belong to a region of observation inaccessible to the general reader or student, since it can only be approached by means of a refined histological technique applied to special objects not ordinarily available for practical study or demonstration. A knowledge of the subject must therefore, in most cases, be acquired from text-books in which drawings are made to take the place of the real object. But no drawing, however excellent, can convey an accurate mental picture of the real object. It is extremely difficult for even the most skilful draughtsman to represent in a drawing the exact appearance of protoplasm and the delicate and complicated apparatus of the cell. It is impossible adequately to reproduce the drawing in a black-and-white text-book figure. Every such figure must necessarily be in some measure schematic and embodies a considerable subjective element of interpretation.

The photograph, whatever be its shortcomings (and no photograph can do full justice to nature), at least gives an absolutely faithful representation of what appears under the microscope; it contains no subjective element save that involved in the focussing of the instrument, and hence conveys a true mental picture. The present work, therefore,

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[4] An atlas of the Fertilization and Karyokinesis of the ovum. By Edmund B. Wilson, Ph. D., Professor of Invertebrate Zoology in Columbia College, New York. Columbia University Press McMillan & Co., 1895.